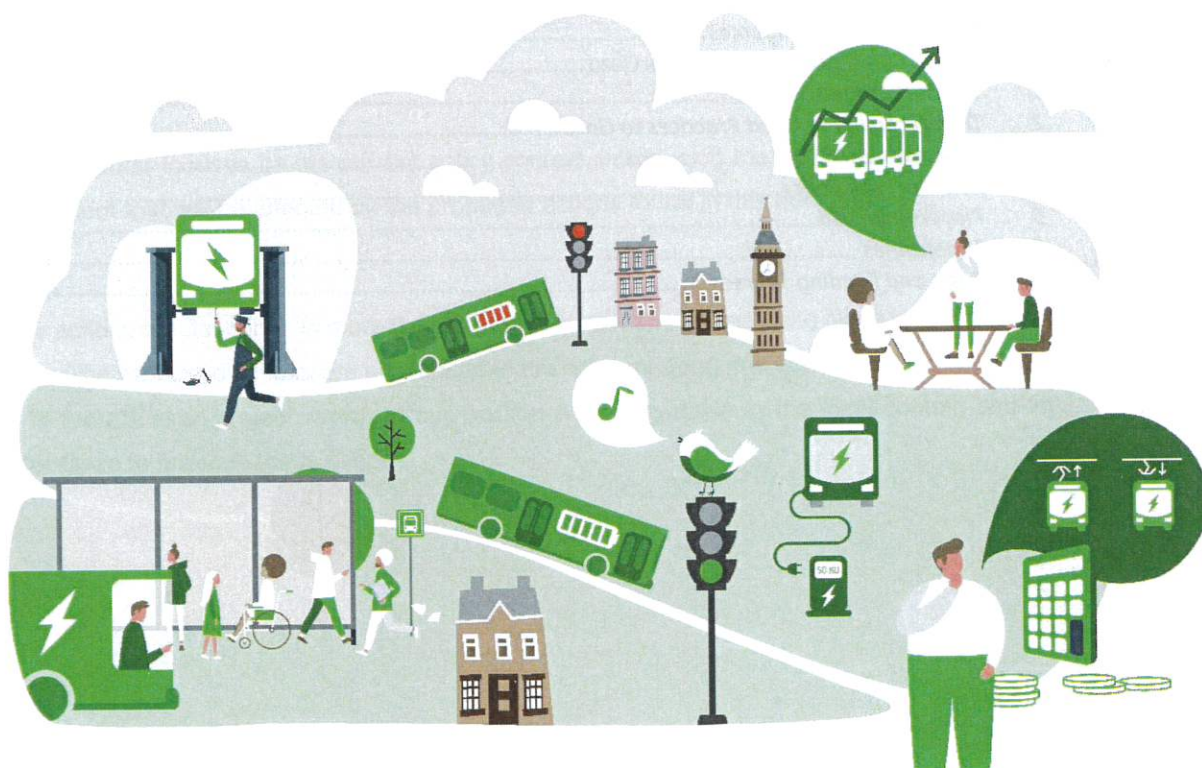


eBussed
Interreg Europe

Action Plan

GOZO



Contents

INTRODUCTION.....	3
PART I – GENERAL INFORMATION.....	4
THE EBUSSED PROJECT	4
THE MINISTRY FOR GOZO AND THE LOCAL CONTEXT	5
STATUS QUO OF PUBLIC TRANSPORT IN GOZO	6
<i>Current Public Transport Fleet</i>	6
<i>Electric Bus Park & Ride Service</i>	9
PART II – POLICY CONTEXT	10
THE POLICY OWNER – GOZO REGIONAL DEVELOPMENT AUTHORITY	10
THE POLICY INSTRUMENT – GOZO REGIONAL DEVELOPMENT STRATEGY 2021 – 2030	11
<i>Priority Area 1 - Gozo Spatial Planning and Sustainable Urban Development</i>	12
HOW WILL THIS ACTION PLAN IMPROVE THE POLICY INSTRUMENT?	13
PART III – DETAILS OF THE ACTION ENVISAGED.....	14
ACTION 1 – UPDATING THE <i>GOZO REGIONAL DEVELOPMENT STRATEGY 2021 – 2030</i>	14
1. <i>The background</i>	14
2. <i>Transferability of Good Practices to Gozo</i>	14
3. <i>Action</i>	15
4. <i>Relation with Policy</i>	16
5. <i>Players involved</i>	16
6. <i>Timeframes</i>	16
7. <i>Costs and Funding Sources</i>	17
ACTION 2: INITIATING THE E-BUS TRANSITION IN GOZO	17
1. <i>The background</i>	17
2. <i>Transferability of Good Practices to Gozo</i>	18
3. <i>Action</i>	18
4. <i>Relation with Policy</i>	19
5. <i>Players involved</i>	19
6. <i>Timeframes</i>	20
7. <i>Costs and Funding Sources</i>	20

Introduction

This action plan is aimed to be the transition path to the implementation of a fully electric bus fleet in Gozo. The Ministry for Gozo is one of the project partners of the Interreg Europe eBussed Project, where different regions are sharing their knowledge and experience on the implementation of electric buses in their respective region. Throughout this project, all the partners shared several good practices, and this helped the Ministry for Gozo to gain more knowledge about electrification. In fact, some of the good practices were essential for the local context, to aid the shift to electric buses.

The first action proposed is to update the Gozo Regional Development Strategy 2021-2030 to include the shift of the current public transport fleet to electric. The aim of the second action is to start this shift to e-buses by integrating a new electric bus in the public transport fleet of Gozo (thus replacing a diesel bus).

This report initially provides some information about the eBussed project and the local partner, the Ministry for Gozo. The next section focuses on the current bus fleet composition in Gozo and describes the current electric bus service in operation. This is aimed to indicate at which stage Gozo stands today in relation to electric bus deployment.

The second chapter focuses on the current policy context, introducing the policy owner (GRDA) as well as the policy instrument that will be affected by the proposed actions found in this document.

Finally, the actions are described in more detail, listing the activities that will take place together with the proposed timeframes. The proposed actions are also linked to the relevant good practices presented by the other regional partners in the eBussed project, which in our opinion were applicable to the local context and influenced the Ministry for Gozo to propose these actions.

Part I – General information

Project: Ebussed Project

Partner organisation: Ministry for Gozo

Other partner organisations involved: (N/A)

Country: Malta

NUTS2 region: Malta (whole country)

Contact person: Joseph Piscopo

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The eBussed Project

Transitioning from a region with public transportation based on diesel buses to a region with e-bus fleets requires ample expertise in different fields. A wide range of themes must be covered to initiate and support e-bus development. The Interreg Europe eBussed project (eBussed) concentrates on the exchange of experience between different partner regions, all being at different stages of electric bus (e-bus) development. This project aims at providing information to the different regions struggling with this highly technical and fast-developing field. As no partner region has entirely settled their e-bus transitioning path, new ideas, solutions, and technologies can still be introduced to their development plans regardless of their current e-bus status.

eBussed supports the transition of European regions towards low carbon mobility and more efficient public transport. It promotes the uptake of e-buses in new regions and supports the expansion of existing e-fleets. The eBussed project contributes to the Interreg Europe program Specific objective 3.1 "Improving low-carbon economy policies" by encouraging regions to develop and deliver better policies related to the deployment of e-buses. The project also facilitates the integration of electricity production based on renewables and low carbon electrified public transport. Through new ideas and better policies, the project promotes both the demand and supply side of electricity from clean renewable sources and the subsequent transitioning towards a low carbon economy.

The eBussed project engages regions with and without practical experience on e-buses. In addition to this and the other thematic good practice reports, the project will deliver six regional action plans and policy

recommendations to be used in partner regions. The project increases capacities and knowledge among its partner regions via a multi-level exchange of experiences and cross-regional pollination of ideas to better support the transition towards fully electrified bus fleets and low carbon mobility.

The consortium formed for eBussed comprises of the following partners:

- Turku University of Applied Sciences, Finland
- Free and Hanseatic City of Hamburg, Germany
- Ministry for Gozo, Malta
- Province of Livorno, Italy
- University of Applied Sciences Utrecht, the Netherlands
- Province of Utrecht, the Netherlands
- South Transdanubian Regional Innovation Agency, Hungary

The main idea in the forming of the project consortium was to find project partners at different stages of e-bus development to maximize the knowledge exchange potential between project partners. The benefits of having a consortium consisting of regions familiar with e-buses and regions with less experience on the topic are evident. As no one-size-fits-all solution is currently available for e-buses, knowledge exchange is extremely fruitful to all partners despite their different development stages. In addition, e-bus technologies, charging solutions and business models are in a constant flux of development, with many competing solutions and models currently available, and new, more advanced technologies and solutions continuously entering the market. Consequently, all regions benefit from the experiences gathered and shared before and during the project.

The Ministry for Gozo and the local context

The Ministry for Gozo is the Ministry of the Government of Malta which is responsible for the island of Gozo. Its aim is to effectively, efficiently, economically and with a service of excellence, implement the regional and national strategies and policies to secure the economic and social prosperity of Gozo within the context of the island's unique characteristics.

Gozo is a small island (area of 67km² and population of 34,430¹) with an elevated density of cultural and natural heritage, and a relatively unspoiled landscape. It has economic and social specificities as well as challenges that arise from the combined effects of double insularity, environmental vulnerability, population density and limited resources.

¹ Source: Regional Statistics Malta, 2020 edition ([Regional Statistics 2021 full publication.pdf \(gov.mt\)](#))

The inherent characteristics of Gozo, among which its smallness and double insularity, imply the need for specific interventions to rectify market frictions and barriers which inhibit its development on a level playing field with the rest of the national and EU economy.

On the other hand, Gozo possesses distinctive environmental and cultural assets whose sustainable use could be productively used for the development of the island as well as the national economy. The Gross Domestic Product per capita of Gozo is lower than that of Malta due to lower rates of employment and lower productivity. This is attributed to the fact that Gozo is constantly facing challenges to overcome the structural challenges that characterise its regional economic and social development. A great effort is needed to overcome constraints related to the shortage of skilled labour, the cost of finance and the challenges related to the development of new markets and investment. Enterprises in Gozo need to overcome disadvantages including higher costs due to double insularity and lack of economies of scale².

Status Quo of Public Transport in Gozo

Current Public Transport Fleet

Currently, the public transport system in Gozo consists of a fleet of 23 diesel buses. Twenty-one of these buses are nine metre buses while two are twelve metre buses. The model of the nine-metre bus is the Otokar Vectio C, which complies to the EURO VI standard while the model of the twelve-metre bus is the Otokar Kent C with a EURO VI standard. A vehicle complying with the EURO VI emission standard refers to the cleanest diesel vehicle in terms of emissions. This category refers to the most recent defined European emission standard.



² Source: [GRDA Gozo-Strategy-Report VH WEB OP2.pdf](#)

³ Source: [Malta Public Transport](#)

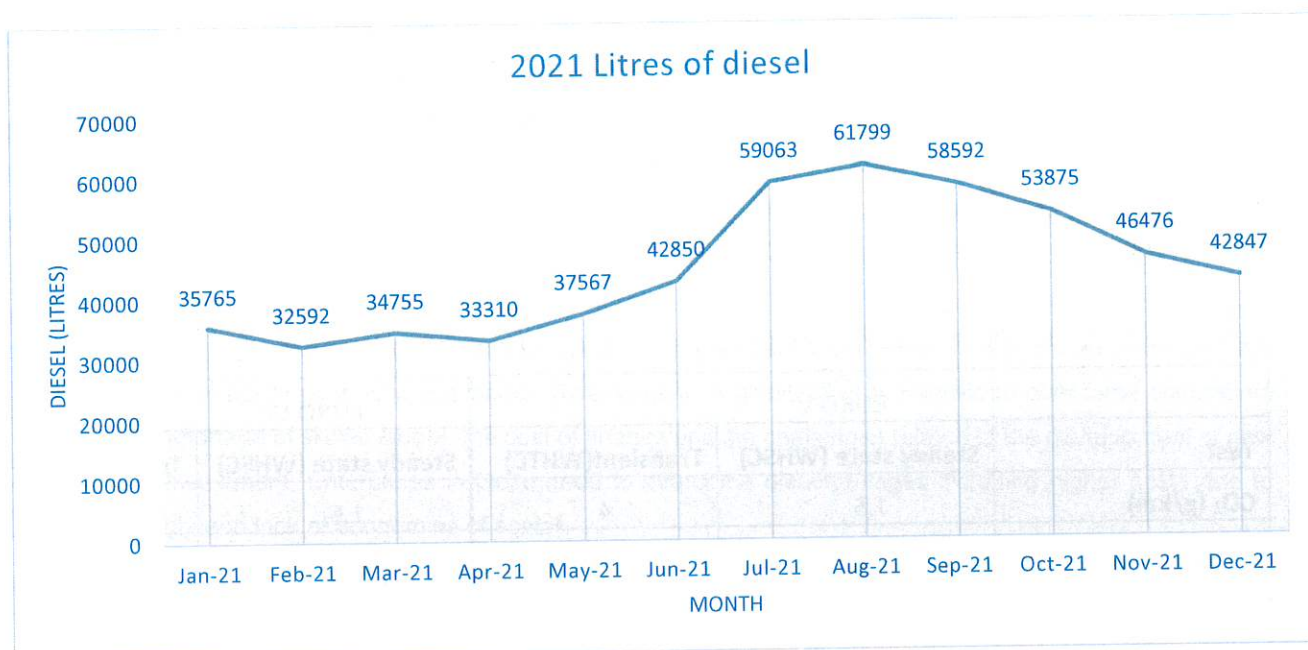
The EURO VI has an 80% reduction in the Nitric oxide (NOx) emission when compared to a EURO V vehicle. The particle mass limit (PM) was reduced by 66% from a EURO V to a EURO VI. In contrast to a EURO V, a EURO VI engine has a defined particle number limit (PN) and defined limits of ammonia. The CO₂ emissions of a EURO VI engine are listed in the table below along with the other emission standards of heavy-duty vehicles (as specified in the European regulation (EC) No 715/2007):

Table 1- Euro VI Heavy-duty vehicle emission standards for diesel engines⁴

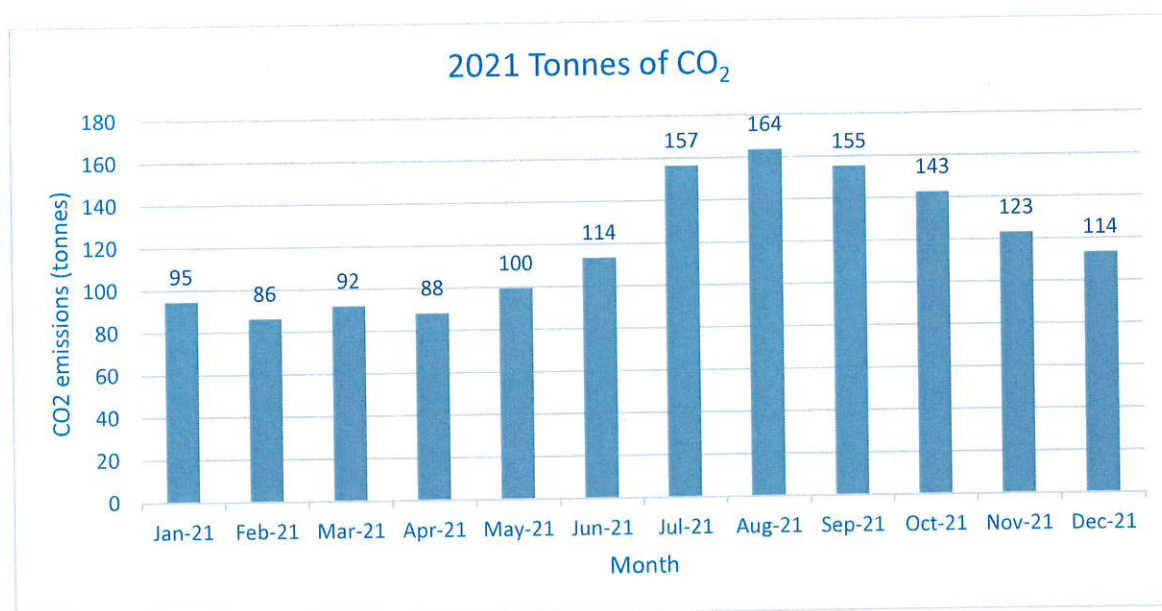
Test	EURO V		EURO VI	
	Steady state (WHSC)	Transient(WHTC)	Steady state (WHSC)	Transient (WHTC)
CO ₂ (g/km)	1.5	4	1.5	4
HC (g/km)	0.46	0.55	0.13	0.16
CH ₄ ^c (g/km)		1.1		0.5
Nox (g/km)	2	2	0.4	0.46
PM (g/km)	0.02	0.03	0.01	0.01
PN (#/km)			8.0×10 ¹¹	6.0×10 ¹¹
Ammonia (ppm)			0.01	0.01
Fuel sulfur limit (ppm)	10	10	10	10

During 2021, the total fuel consumption of the bus fleet in Gozo amounted to 540,000 litres of diesel. The diesel consumption of the bus fleet in Gozo varies during the different months.

⁴Source: "A technical summary of Euro 6/VI," June 2016:(https://theicct.org/sites/default/files/publications/ICCT_Euro6-VI_briefing_jun2016.pdf)



The yearly fuel consumption of 2021 translates to 1,430 tonnes of CO₂ given that the CO₂ emission value for 1 litre of diesel is 2.65kg⁵. The maximum CO₂ emission in a month was 164 tonnes and occurred during August 2021.



Although the diesel buses in operation produce the least number of emissions (EURO VI standard) when compared to older diesel buses, there are still considerable CO₂ emissions. If diesel buses are replaced by fully electric buses, the public transport fleet will be transformed to a zero-emission fleet, promoting a cleaner and more sustainable mobility.

⁵ Source: "DATABASE OF CO₂ EMISSION IN NIGERIA: A PRELIMINARY REPORT, Research Gate, p. 271, 2009.

Electric Bus Park & Ride Service

In November 2021 six fully electric buses, procured by the Ministry for Gozo, were launched in Gozo as part of a park and ride service. This project is being overseen by the Ministry for Gozo in coordination with Transport Malta (the transport authority for Malta and Gozo) whilst the buses are being operated on a daily basis by Malta Public Transport (the sole public transport operator in Malta and Gozo).



This service is currently operating between Xewkija Heliport and Mgarr Harbour between 5am and 9pm daily and is targeted towards Gozitan residents who travel to Malta for work or academic purposes without a car. This park and ride service is free of charge, with the aim to attract residents to use electric buses. The charging technology used to charge the electric buses in Gozo is conductive charging via plug-in rated at 60kW. Currently, the buses are being charged at Xaghra, Gozo where there are 3 electric bus chargers available to charge the buses overnight.⁶

It is significant to note that prior to the purchase of these e-buses, a Cost Benefit Analysis by the Ministry for Gozo was conducted to gauge the demand for a park and ride as well as the feasibility of using an e-bus system. It was concluded that although from a financial perspective the project is not expected to generate a positive return on investment, it is envisaged that the project will ameliorate the livelihood and wellbeing of Gozitan commuters. Therefore, the deployment of these zero emission buses is one of the initial steps taken to encourage a modal shift for travel via a cleaner public transport whilst also contributing to improving society's welfare.⁷

⁶ Information as provided by Malta Public Transport officials

⁷ <http://www.interregeurope.eu/policylearning/good-practices/item/5677/cost-benefit-analysis-cba-to-assess-the-feasibility-of-electric-buses-in-the-region/>

Part II – Policy context

The Action Plan aims to impact:

- ☐ Investment for Growth and Jobs programme
- ☐ European Territorial Cooperation programme
- ☒ Other regional development policy instrument

Name of the policy instrument addressed: **Gozo Regional Development Strategy 2021 – 2030**

Note: The policy instrument originally indicated in the Application Form was ***Operational Programme I: Fostering a Competitive and Sustainable Economy to meet our Challenges - Priority Axis Seven 7: Shifting towards a more low-carbon Transport sector***. Since this policy context was found within Operation Programme I for the 2014 – 2020 period, it has now reached its final stages and the opportunities for support from this policy instrument are limited. For this reason, it was decided that the local action plan of the eBussed project will now address this new policy instrument (Gozo Regional Development Strategy 2021 – 2030).

The Policy Owner – Gozo Regional Development Authority

The Gozo Regional Development Authority (hereafter referred to as the Authority or GRDA) is an autonomous authority being set up through the Gozo Regional Development Act XVIII of 2019 (hereafter referred to as the ACT) CAP 600. An Authority is one of the highest local institutional set-ups, given it is established, recognised, and given its powers separately through an Act in the Laws of Malta.

The Act gives the Authority its own distinct personality and gives power to the Authority not only on consultative matters but also to implement, regulate and enforce action. The Authority has both a consultative and regulatory function, with its initial aim being that of drawing up a Gozo Regional Development Strategy and seeing its implementation. The GRDA was officially launched in September 2020.

The mission of the GRDA is to strengthen Gozo's voice amongst policy makers and other governmental bodies, so as to ensure that policies and actions drawn up and projects proposed are adequate for the specific nature of the Gozitan ecosystem. By making sure that Gozo's perspective is featured in policy making, the GRDA will ensure that Gozo specific issues are tackled and that strengths are capitalised, therefore developing the island in a sustainable manner.

The GRDA goes far beyond being a forum for discussions; the Act provides it with the necessary powers, within the parameters of the law, to drive policy and implement related actions. Moreover, the focus of the authority is

on all sectors and niches in society, by bringing together all Gozitan stakeholders, making sure that everyone is heard and that the implementation is streamlined across all sectors. The Authority has the power to delegate and where necessary, implement directly, whilst still working hand in hand with the Ministry for Gozo (MGOZ). The GRDA also has the role to inform MGOZ with the overall sentiment in the Gozitan community in terms of policies, challenges, and issues as they arise, and to make sure that all the actions adopted are in line with the overarching direction and long-term goals outlined in the Regional Development Strategy (RDS)⁸

The Policy Instrument – Gozo Regional Development Strategy 2021 – 2030

The Regional Development Strategy (RDS) is central to the activities of the GRDA and it acts as the roadmap for any further initiatives that will be undertaken with respect to Gozo. The strategy was launched in 2021 following consultations within Government, with the private sector, constituted bodies, non-governmental organisations and the general public. The RDS was formulated by looking at the needs and ambitions of Gozo and proposing a medium-to-long term socio-economic vision and plan which is realistic and implementable.

The aim of the Regional Development Strategy is to act as a guidance for all other regional and national policies in terms of what outcomes are to be achieved and minimize the risk of fragmentation between sectors and ensure that all the players are moving towards one unique goal, within the same set of parameters. Another important function is that of ensuring that a Regional Impact Assessment Study (RIAS) is carried out whenever a policy, strategy, action plan or regulation of major development is drawn up and will influence Gozo.

The purpose of such Regional Impact Assessment studies is to make sure that Gozo's most important economic, social and environmental characteristics are taken into account in any national strategy, policy design and planning.

To achieve the vision of the Gozo Regional Development Authority, the RDS focuses on 8 Priority Areas:

1. Spatial Planning and Sustainable Urban Development
2. Infrastructure and Accessibility
3. Economic and Talent Development
4. New Economy
5. Sustainable Tourism
6. Social Development
7. Rural Development and Eco-Gozo
8. Culture, Heritage and Arts

These priority areas embrace the effort to protect the Gozitan lifestyle in full respect of its environment, resources, culture and identity and ensure that all these play a significant part in presenting a vibrant community that attracts

⁸ [GRDA Vision-Document_A4_VH_OP-WEB.pdf](#)

more visitors and investors to the island while sustaining the balance between economic growth and sustainable development.

Priority Area 1 - Gozo Spatial Planning and Sustainable Urban Development

Gozo necessitates a focused approach towards an integrated system where land use, planning and sectorial policies are in synergy with Gozo's characteristics. Spatial planning should be providing an expression to the economic, social, cultural and environmental policies relevant to the island's balanced regional development. Optimal use of land increases the chances that land is available for the future envisaged spatial development requirements. It also safeguards and enhances Gozo's unique cultural and natural characteristics, which are an important requirement for economic growth capable of improving the quality of life.

*The main goals of the **Spatial planning and Sustainable Urban Development** priority axis are:*

- A better quality of life for both the residents of Gozo as well as the visitors.
- A natural network of open space to be enjoyed by the community.
- To safeguard the green open spaces between villages which are Gozo's green lungs.
- To ensure that the rural communities remain vibrant and alive.
- To ensure that the economic development is consistent with and true to sustainable development.
- To plan and build a sustainable environment that contributes to economic prosperity of present and future generations

To achieve these goals a number of measures are proposed. One of the measures is targeted to encourage the shift of the road transport system to one of lower emissions, promoting a cleaner mobility. More specifically, Measure 1.6 focuses on the Greening of Commercial and Private Vehicles as described below:

M1.6 Greening Commercial and Private Vehicles

Extend any national initiative or scheme with regards greening of commercial and private vehicle to create further incentives to Gozo. This should include the removal of exhaust belching commercial and private vehicles from the roads through a three-tiered approach.

This includes:

- (1) schemes directed at Gozitans to replace their commercial or private vehicle with a Battery Electronic Vehicle (BEV) or a hybrid electric vehicle;*
- (2) discounts and eco-friendly behaviours for private vehicle mobility;*
- (3) replace the current Ministry's fleet with Battery Electrical Vehicles (BEV).*

How will this Action Plan improve the Policy Instrument?

As demonstrated in section [Status Quo of Public Transport in Gozo](#), although the diesel buses currently in operation produce the least number of emissions (EURO VI standard) when compared to older diesel buses, they still emit a considerable amount of CO₂. If diesel buses are replaced by fully electric buses, the public transport fleet will be transformed to a zero-emission fleet, promoting a cleaner and more sustainable mobility.

The ultimate aim of this action plan is therefore to promote the shift of the public transport fleet in Gozo from diesel buses (see [Current Public Transport Fleet](#)) to an electric bus fleet.

This Action Plan will improve the policy instrument by **proposing a structural change in the policy instrument**. Specifically, Action 1 aims at promoting the shift of the public transport fleet in Gozo from diesel to electric by including it in the Gozo Regional Development Strategy 2021 – 2030. Currently, Measure 1.6 of the Gozo Regional Development Strategy 2021 – 2030 only refers to the electrification of the Ministry for Gozo's car fleet. Through this action plan, this measure will be extended to include specific measures aimed at promoting the replacement of all the current Public Transport fleet in Gozo with electric buses. The action will be supported by a series of measures and initiatives which will facilitate the transition to e-buses and therefore significantly reduce the risk of failures.

As per Interreg Europe 4th Call project requirements, the main action in the Action Plan (the structural change to the policy instrument) is to be completed within Phase 2 of the eBussed project (that is till the end of July 2023). However, the shift towards a full fleet of e-buses in Gozo is planned to be done gradually throughout the timeline of the Gozo Regional Development Strategy (until 2030).

The action was influenced from lessons learnt and Good Practices of other partners throughout the course of Phase 1 on the Interreg Europe e-Bussed project. The adoption of the actions listed in this Action Plan will enable the policy owner to fulfil better the goals associated with "Priority Area 1 - Gozo Spatial Planning and Sustainable Urban Development" of the Gozo Regional Development Strategy 2021 – 2030 and thus achieve the vision of developing the island of Gozo in a sustainable manner.

This Action Plan would also enable the Gozo Regional Development Strategy 2021 – 2030 to be more in line with National and European policies and strategies which are encouraging the shift towards electrification. This includes the National Transport Strategy 2050 of the Maltese islands which states that the target is to shift away from conventionally fuelled cars by 50% by 2030 and a complete phase out by 2050. Current and future Maltese legislations define targets with the aim to reduce emissions while many European Union (EU) directives are setting emission standards that must be met within defined target dates.

Part III – Details of the action envisaged

ACTION 1 – Updating the *Gozo Regional Development Strategy 2021 – 2030*

1. The background

The aim of this action is to promote electrically-driven public transport by updating the Gozo Regional Development Strategy 2021 – 2030 (of which the Gozo Regional Development Authority is the policy owner) to include a measure in the strategy which suggests that the public transport fleet is to be converted to e-buses.

This action was influenced from the following Good Practices:

- **Just e-start** Good Practice by Utrecht
- **Structured approach for e-bus transition (E-Mobility Roadmap)** Good Practice by Hamburg.

a) Just e-start

In Utrecht, in 2016 the Provincial Government adopted the Action Plan Introducing ZE-Buses with the aim to first introduce small projects to learn from and scale up, when possible, to the final aim of a complete zero emission bus fleet. Although the introduction of these ZE buses was a success, there were also several implementational and operational difficulties. All of this was essential since it enabled learning and the ability to take informed decisions when more e-buses were added to the fleet in subsequent years.

b) Structured approach for e-bus transition (E-Mobility Roadmap)

In Hamburg, the public transport operator VHH defined 16 work packages which cover the main aspects of a transition towards e-mobility, from assessing the energy demand of future e-bus operations to the planning of long-term traffic concepts. This enables a structured approach to planning e-bus implementation and facilitates identification of required steps of adaptation.

2. Transferability of Good Practices to Gozo

The main lesson learnt from Good Practice a) is that when transitioning to an e-bus fleet, one has to start with small projects, learn from them and then upscale slowly until the whole bus fleet is changed to electric. This will help to have a smooth transition from diesel to electric, by integrating small batches of electric buses to the current fleet.

On the other hand, Good Practice b) highlights the importance of having a structured transition to e-buses in order to have a long-term success.

As was done in Good Practice a), it is important that the introduction of electric buses in the local fleet is done gradually to gain knowledge about their operation before expanding the whole bus fleet to electric. A structured transition as learned from Good Practice b) is also crucial since when doing such a transition one needs to take into account all factors like new infrastructure required, training and route re-evaluation.

3. Action

Currently, Measure 1.6 of the Gozo Regional Development Strategy 2021 – 2030 only refers to the electrification of the Ministry for Gozo's car fleet and **there is no mention about the electrification of the bus fleet** used for public transport.

National and European policies and strategies are promoting the shift of all modes of transport towards zero emission:

- National – National Transport Strategy 2050 of the Maltese islands which states that the target is to shift away from conventionally fuelled cars by 50% by 2030 and a complete phase out by 2050;
- European – European Green Deal which has a 2030 climate ambition of committing to cut emissions by at least 55% by 2030 through the 'Fit for 55' legislative package.

This action will therefore promote the update of the current Gozo Regional Development Strategy 2021 – 2030 so that it will be in line with National and European zero emission strategies. The update which is being proposed is that Measure 1.6 of the strategy which currently only includes measures for the “greening” of commercial and private vehicles will be updated to include measures for Sustainable Mobility in **both** the private and public sectors. Specifically, a measure is to be included which refers to the **gradual conversion of the current public transport fleet in Gozo to electric**. For the measure to be implemented (that is the actual shift of the bus fleet in Gozo to e-buses) the policy owner will have time until 2030 which is until the end of the period of the strategy and is also in line with the National and European policies mentioned above.

All the process for the integration of this measure into the policy will be done by the end of Phase 2 of the eBussed project. Specifically, the following steps will need to be done for a successful policy change:

- 1) Acceptance of Action Plan by Policy Owner
- 2) Review of the current version of the policy
- 3) Consultations with main stakeholders
 - a. Transport Malta - National Transport Authority
 - b. Malta Public Transport – Transport Operator
 - c. Ministry for Gozo
- 4) Drafting the policy change
- 5) Sending the updated Gozo Regional Development Strategy to Cabinet for approval
- 6) Publication of the updated Gozo Regional Development Strategy

4. Relation with Policy

As explained in Section "Action", Action 1 will directly influence the policy instrument since it is meant to improve the Gozo Regional Development Strategy 2021 – 2030 by updating it to include a measure for Sustainable Mobility also in the public transport sector (currently there are only measures about private transport). This action will suggest that the public transport fleet in Gozo is to be gradually converted to e-buses. By doing so this will enable the policy to be more in line with National and European zero emission strategies.

5. Players involved

- Ministry of Gozo
- Transport Malta (National Transport Authority)
- Malta Public Transport (National Transport Operator)
- GRDA (Policy owner)
- Cabinet (for approval of policy change)

6. Timeframes

	April – June 2022	July – September 2022	October – December 2022	January – March 2023	April – June 2023	End of Phase 2
Action 1						
• Acceptance of Action Plan by Policy Owner						
• Review of current policy						
• Consultation with stakeholders						
• Finalizing the draft of the updated Gozo Regional Development Strategy						
• Present the strategy to Cabinet for approval						
• Publication of the updated Gozo Regional Development Strategy						

7. Costs and Funding Sources

	Cost	Funding Source
Action 1	€ 800 - € 1000	GRDA
• <i>Review of Current Policy</i>		
• <i>Consultation Process</i>		
• <i>Feedback Analysis</i>		
• <i>Publication</i>		

ACTION 2: Initiating the e-bus transition in Gozo

1. The background

The aim of this action is to initiate the shift from diesel to electric buses, as proposed in Action 1, where the Gozo Regional Development Strategy is being updated to also address the shift of the current public transport fleet in Gozo to electric. Hence Action 2 will start the shift to electric buses in Gozo, where a new electric bus will be integrated in the public transport fleet of Gozo (thus replacing a diesel bus) and will be in operation.

The national transport operator (Malta Public Transport) has recently procured 2 electric buses, with the aim of fully testing these buses on different routes and eventually integrating them in the public transport fleet⁹. Through this action it is being proposed that **one of these buses** is brought to Gozo and integrated in the public transport fleet. This e-bus will be replacing one of the diesel buses from the Gozo public transport fleet. To have a successful integration it is being proposed that first there is a pilot phase on a current public transport route and after that actual operation with passengers will commence.

This action was influenced from the following Good Practices:

- ***Just e-start*** Good Practice by Utrecht;
- ***Using test e-buses for identifying technical requirements for the city of Pécs***

a) Just e-start

In Utrecht, in 2016 the Provincial Government adopted the Action Plan Introducing ZE-Buses with the aim to first introduce small projects to learn from and scale up, when possible, to the final aim of a complete zero emission bus fleet. Although the introduction of these ZE buses was a success, there were also several implementational and operational difficulties. All of this was essential since it enabled learning and the ability to take informed decisions when more e-buses were added to the fleet in subsequent years.

⁹ [Malta Public Transport](#)

b) Using test e-buses for identifying technical requirements for the city of Pécs

This Good Practice describes an evidence-based approach that provides opportunities to test several types of buses before deciding in favour of a given type of e-bus to be used locally.

For this above purpose the Municipality of Pécs City from 2013 onwards delivered several e-bus tests. During this process on one occasion the EVOPRO, and on four occasions BYD buses (midi and solo ones mixed) were in test operation. In each case the buses were in test-service for 1 week, on existing bus routes and with Pécs bus passengers using the test vehicles available.

The tests proved to be appropriate for identifying the right technological parameters and solutions and possible bus manufacturers that are in compliance with the e-mobility needs of the city (routes, morphology, etc.).

2. Transferability of Good Practices to Gozo

The main lesson learnt from Good Practice a) is that when transitioning to an e-bus fleet, one has to start with small projects, learn from them and then upscale slowly until the whole bus fleet is changed to electric. This will help to have a smooth transition from diesel to electric, by integrating small batches of electric buses to the current fleet.

The main lesson learnt from Good Practice b) is that it is important to test different brands of electric buses in the local scenario on existing routes before deciding on which brand is ideal to operate in the local scenario. This will help for future procurement of more electric buses.

As was done in Good Practice a), it is important that the introduction of electric buses in the local fleet is done gradually to gain knowledge about their operation before expanding the whole bus fleet to electric. Hence, for this reason an action to introduce 1 new electric bus in the current Gozo fleet is being proposed, and thus experience from its operation will be gained before the procurement of more electric buses. Similarly, to what was done in Pecs, Hungary, the electric bus will be operating in Gozo on existing bus routes, and this will help to define the ideal technical specifications for electric buses to be able to further expand the electric bus fleet in Gozo.

3. Action

It is proposed that this new electric bus will be operating on a route that connects the Mgarr Ferry to Victoria (the capital of Gozo Island). This route is very popular with Gozitans, Maltese travelling to Gozo for vacation and also with tourists. In this way, the local community will have the opportunity to travel via electric buses, so this action will have multiple positive outcomes. This action will:

- promote electric mobility with users;
- provide the operators with the experience of operating electric bus models on existing routes in Gozo to facilitate further expansion;
- commence the implementation of the new policy recommendation as described in Action 1.

Given that Gozo is characterised by a hilly topography, short distance between bus stops and high operating temperatures during the summer months (requiring use of air-conditioning), this electric bus will be utilised in Gozo to assess how the selected brand of e-bus varies with the following:

- use of air conditioning;
- different passenger capacity;
- different road gradients;
- different operation temperatures (Winter vs Summer).

The operation of this e-bus will indicate how the performance varies with all the elements that characterise Gozo as well as give an indication on the electric bus consumption during operation, power consumption required for the charging and the daily range (kilometres) that can be operated by this electric bus in Gozo.

As mentioned in [Status Quo of Public Transport in Gozo](#), there is another electric bus service currently operating on a different route in Gozo. This service is operated with a different brand of e-buses, so with the implementation of this action, different brands of e-buses will be operating in the local context. The outcome from the park & ride e-bus service can be also compared to the operation of this new e-bus, and this will be useful for future expansion and electrification of the whole bus fleet in Gozo, since:

- knowledge will be obtained on how different electric buses operate in the island of Gozo;
- ideal technical specifications of e-buses to be able to operate in Gozo can be better defined.

This valuable information will be very useful to the national transport stakeholders for future procurement of more electric buses. This will be in line with the ***Using test e-buses for identifying technical requirements for the city of Pécs*** good practice which compares different brands of e-buses in the local context and also with the ***Just e-start*** Good Practice from Utrecht which aims at introducing electric buses gradually in the current fleet.

4. Relation with Policy

Action 2 is proposing to initiate the shift of the current public transport fleet in Gozo to electric. This action is a continuation of ACTION 1 – Updating and supporting the Gozo Regional Development Strategy 2021 – 2030 to promote the shift of the public transport fleet to e-buses since the proposed policy change in Action 1 will be backed up by actual implementation; Action 2 is proposing the integration of a new e-bus to the current Gozo public transport fleet. This bus will operate on an existing route/s and will be the start to the transition to a fully electric bus fleet in Gozo.

5. Players involved

- Malta Public Transport (national transport operator that procured the new electric bus)
- Ministry of Gozo (owns the chargers to be used)
- Transport Malta (National Transport Authority)
- GRDA (Policy owner)

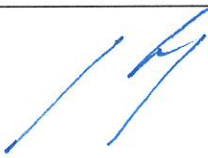
- Enemalta Plc (energy services provider)

6. Timeframes

	April – June 2022	July – September 2022	October – December 2022	January – March 2023	April – June 2023	End of Phase 2
Action 2						
• Coordination between the Ministry of Gozo, Transport Malta and Malta Public Transport to agree on the operation of the new e-bus in Gozo						
• Shift of the new e-bus procured by Malta Public Transport to Gozo						
• Commencement of the trials on the route/s						
• Commencement of the actual operation with passengers						

7. Costs and Funding Sources

	Cost	Funding Source
Action 2		
• Logistics and Route Planning	€ 3,000	Transport operator
• Operational cost and Maintenance cost	Since the e-bus will be replacing an existing diesel bus there will be no additional costs for operation (drivers). Regarding maintenance, technicians in Gozo are already trained to maintain e-buses since MPT is already operating the park&ride e-bus service.	Transport operator
• Electricity cost to charge the buses	The e-bus chargers in Gozo currently belong to the Ministry for Gozo. An agreement has to be done with the Ministry for Gozo for the use of these chargers and any related costs.	Transport operator

Date:	15 July 2022
Organisation:	Gozo Regional Development Authority (GRDA)
Name:	Mr Mario Borg (CEO GRDA)
Signature:	
Stamp of the organisation (if available):	<p>Mario Borg <i>Chief Executive Office</i> Gozo Regional Development Authority</p>